

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. Claim 33 is amended by incorporating the features of dependent Claim 34, and new Claim 41 includes elements previously included in Claim 33. Claim 34 is canceled. Since Claim 33 is amended to incorporate Claim 34 and new Claim 41 includes elements previously included in Claim 33, Applicant respectfully requests entry of the amendment. After entry of the claim amendments, Claims 26-33 and 35-41 will be pending in this application.

Applicant thanks the Examiner for withdrawing the previous rejections.

Interview Summary

Applicant thanks the Examiner for taking the time to discuss this case with Applicant's representative on March 31, 2010. During that telephonic interview, the Examiner and Applicant's representative (Paul S. Hunter) discussed the finality of the present rejection as well as the new reference used in the Examiner's rejection--Kawanami et al. (U.S. Patent No. 6,603,444). The discussion was helpful in understanding the Examiner's position.

Finality of Rejection is Not Proper

In the previous Response, Applicant did not amend any of the claims and did not submit an IDS. The present Office Action introduced a new ground of rejection. As such, the finality of the rejection is improper, per MPEP 706.07(a), which states:

Under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims, nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p).

Accordingly, Applicant respectfully requests withdrawal of the finality of the rejection.

Claim Rejections - 35 U.S.C. § 102(e)

On page 2 of the Office Action, Claims 26, 29, 30, and 33-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawanami et al. (US 6,603,444). Applicant respectfully traverses the rejection.

1. **Kawanami et al. does not disclose the claimed “array of electrically controllable lenses ... wherein the light is ... transmitted unfocused by the lens to darken the associated pixel.”**

The Examiner identifies item 106 from Kawanami et al. as the claimed “array of electrically controllable lenses.” However, 106 is identified by Kawanami et al. as a “liquid.” As shown in Fig. 1A of Kawanami et al., which is reproduced below, liquid 106 is partially surrounded by “electrolyte solution 107.” When a voltage is applied between substrate 103 and electrode 108, the interfacial tension varies between the first liquid 106 and the electrolyte solution 107 and, thus, the interface is deformed. (See Kawanami et al., col. 3, lines 58-66.) Fig. 1B of Kawanami et al. which is reproduced below, illustrates a deformed interface between the liquid 106 and electrolyte solution 107.

FIG. 1A

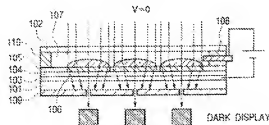
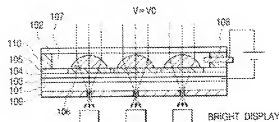


FIG. 1B



Claim 26 recites:

A display device comprising:

a substrate layer comprising substantially transparent material;

a pinhole mask comprising an array of pinholes, wherein each pinhole of the array of pinholes is associated with a pixel of the display device; and

an array of electrically controllable lenses positioned between the substrate layer and the pinhole mask to control the divergence of light received through the substrate and the lenses towards the pinhole mask, wherein the light is focused into a pinhole by a lens of the array of electrically controllable lenses to illuminate the associated pixel and is transmitted unfocused by the lens to darken the associated pixel.

(emphasis added.)

As can be seen by Fig. 1A of Kawanami et al., the shape of liquid 106 is such that even in the “dark display” state, the passing light is focused. Col. 3, lines 41-57 of Kawanami et al. states:

The difference between the refractive indexes of the first liquid 106 and the electrolyte solution 107 is preferably not less than 0.05 and in the present embodiment the refractive index of the first liquid 106 is 1.49 while the refractive index of the electrolyte solution 107 is 1.34. Therefore, the incident light is refracted at the interface between the first liquid 106 and the electrolyte solution 107. In the state of $V=0$ where no voltage is applied to the electrolyte solution 107, i.e., where no voltage is applied to the electrolyte solution 107 between the active element array substrate 103 and the opposed electrode 108 of nickel (FIG. 1A), since the first liquid 106 has a small angle θ_0 of contact against the substrate 101 with the active element array substrate 103, insulating layer 104, and surface treatment layer 105 formed thereon, the light is hardly converged and thus the most light is cut by the mask 109, whereby the display of each pixel is in an off state (dark display).

(emphasis added.)

Thus, even in the “dark display” state, the fact that the two liquids 106 and 107 have a difference in refractive indexes results in the incident light being refracted at the interface of liquid 106 and electrolyte solution 107. As illustrated in Fig. 1A of Kawanami et al., the shape of liquid 106 results in the convergence of light to a focal point even in the “dark display state,” however this focal point exists somewhere beyond the mask 109. Because the focal point is not located at the “light-transmitting portion” of the mask 109, the display remains comparatively dark because a substantial portion of the focused light will still be absorbed by the mask 109. During the “bright display” state, the interface between liquids 106 and 107 is deformed, thus causing the focal point of the converged light to be moved so that it is located at the “light-transmitting portion” of the mask 109. As such, more light is transmitted through the mask 109, thus causing the display to be brightened. Accordingly, Kawanami et al. discloses that the light is focused during both the “dark display” state and the “bright display” state, and that the focal point is merely moved to or from the “light-transmitting portion” of the mask 109 in order to accommodate the selected state.

Furthermore, while Kawanami et al. says that in the “ $V=0$ state,” the light is “hardly converged,” it is still converged, i.e., focused (as illustrated in Fig. 1A and the accompanying text of the specification). As such, the display element of Kawanami et al. does not provide light that is “**transmitted unfocused** by the lens to darken the associated pixel,” as claimed. (emphasis added.)

An anticipation rejection cannot be properly maintained where the cited reference does not disclose the claimed invention. Accordingly, Applicant respectfully requests withdrawal of the rejection of Claims 26, 29, and 30, which all recite that light be “**transmitted unfocused** by the lens to darken the associated pixel.” Claims 33, 35 and 36 recite:

if it is determined not to illuminate the pixel, **allowing the received light to pass through the lens unfocused** wherein the unfocused light is substantially blocked by a pinhole mask including the array of pinholes.

(emphasis added.) Thus, for at least the same reasons as Claims 26, 29, and 30, the rejection of Claims 33, 35 and 36 cannot be properly maintained.

2. **Applicant's argument is consistent with prior arguments.**

In the Pre-Appeal Brief filed July 29, 2009, Applicant argued that U.S. Patent Publication No. 2001/0004279 (Sako) fails to disclose an "array of electrically controllable lenses." Sako discloses a display device having a liquid crystal layer. Depending on an applied electric field, molecules of the liquid crystal layer are aligned either perpendicular to or parallel to a lower substrate. When the molecules are aligned perpendicular to the lower substrate, light is allowed to freely pass through the liquid crystal layer. When the molecules are aligned parallel to the lower substrate, light is refracted or deflected so that it is absorbed by an absorption portion of the display device. As such, the liquid crystal layer of Sako, merely changes its refractive index to either allow the light to pass through the layer undisturbed or to deflect the light to an absorption portion.

In the Pre-Appeal Brief, Applicant argued that when the light is allowed to pass undisturbed through the liquid crystal layer of Sako, there is certainly no convergence or divergence of the light to or from a focal point. Similarly, when the light is deflected due to the altered refractive index of the liquid crystal layer, the light again does not converge to or diverge from a focal point. Accordingly, the liquid crystal layer of Sako does not cause light to converge to or diverge from a focal point. Thus, the liquid crystal layer of Sako is not the same as a "lens," as claimed.

Unlike the Applicant's claims, Sako illuminates the pixel by having light pass undisturbed and darkens the pixel by deflecting the light. Thus, both Sako and Kawanami et al. fail to show the claimed "array of electrically controllable lenses ... wherein the light is ... transmitted unfocused by the lens to darken the associated pixel." Kawanami et al. does not show the claim feature because it the light is focused to darken a pixel, with a focus point that does not permit much light to pass through a pinhole. Therefore, Kawanami et al. does not "transmit [light] unfocused by the lens to darken the associated pixel" or "allow[] the received light to pass through the lens unfocused wherein the unfocused light is substantially blocked by a pinhole mask including the array of pinholes," as claimed. Sako does not show the claim feature because it deflects light to darken the associated pixel. Therefore, Sako also does not "transmit [light] unfocused by the lens to darken the associated pixel," as claimed.

Withdrawal of the rejection of Claims 26, 29, 30, and 33-36 is respectfully requested.

Claim Rejections - 35 U.S.C. § 103

A. Claims 27, 28, 37, and 38

On page 4 of the Office Action, Claims 27, 28, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawanami et al. in view of Schachar (US 5,731,909). Applicant respectfully traverses the rejection.

Claims 27 and 28 depend from Claim 26. Claim 37 and 38 depend from Claim 33. As discussed above, Kawanami et al. fails to show “array of electrically controllable lenses ... wherein the light is ... transmitted unfocused by the lens to darken the associated pixel,” as in Claim 26, or “allowing the received light to pass through the lens unfocused wherein the unfocused light is substantially blocked by a pinhole mask including the array of pinholes,” as recited in Claim 33. The Examiner has not alleged that Schachar provides this claim feature and indeed it does not. Accordingly, the combination of Kawanami et al. and Schachar fails to disclose, teach, or suggest all of the elements recited in Claims 27, 28, 37, and 38.

Withdrawal of the rejection is respectfully requested.

B. Claims 31 and 39

On page 5 of the Office Action, Claims 31 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawanami et al. in view of Sako (US 2001/0004279). Applicant respectfully traverses the rejection.

The Examiner acknowledges that Kawanami et al. does not disclose “pinholes comprising a reflective mirror configured to reflect light back in the direction of the lens.” The Examiner points to Sako to show this element.

As discussed in detail above, neither Kawanami et al. nor Sako show “array of electrically controllable lenses ... wherein the light is ... transmitted unfocused by the lens to darken the associated pixel,” as recited in Claim 26 from which Claim 31 depends, or “array of electrically controllable lenses ... wherein the light is ... transmitted unfocused by the lens

to darken the associated pixel,” as in Claim 26, or “allowing the received light to pass through the lens unfocused wherein the unfocused light is substantially blocked by a pinhole mask including the array of pinholes,” as recited in Claim 33 from which Claim 39 depends. Kawanami et al. focuses light and Sako deflects light to darken the associated pixel. Accordingly, the combination of Kawanami et al. and Sako fail to disclose, teach, or suggest the elements of Claims 26 and 33 and, therefore, Claims 31 and 39.

Withdrawal of the rejection of Claims 31 and 39 is respectfully requested.

C. Claims 32 and 40

On page 6 of the Office Action, Claims 32 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawanami et al. in view of Do et al. (US 5,608,554). Applicant respectfully traverses the rejection.

Claim 32 depends from Claim 26. Claim 40 depends from Claim 33. As discussed above, Kawanami et al. fails to show “array of electrically controllable lenses ... wherein the light is ... transmitted unfocused by the lens to darken the associated pixel,” as in Claim 26, or “allowing the received light to pass through the lens unfocused wherein the unfocused light is substantially blocked by a pinhole mask including the array of pinholes,” as recited in Claim 33. The Examiner has not alleged that Do et al. provides this claim feature and indeed it does not. Accordingly, the combination of Kawanami et al. and Do et al. fails to disclose, teach, or suggest Claims 32 and 40.

Withdrawal of the rejection is respectfully requested.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted.

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